

WHAT IS CLAIMED IS:

1. A hybrid network device for performing operations in a wireless local area network (WLAN) and operating as a hardware accelerator
5 in a virtual private network (VPN) device, comprising:
 - a host interface module for transmitting or receiving data packets between a host;
 - a VPN module for processing the data packets received from the host interface module using an algorithm of the VPN module; and
 - 10 a WLAN module for processing the data packets from the host interface module using an algorithm of the WLAN module.
2. The hybrid network device of claim 1, further comprising:
 - a local bus for connecting the WLAN module and the VPN module to
15 the host interface module.
3. The hybrid network device of claim 2, wherein the local bus comprises:
 - a first local bus for connecting the WLAN module to the host
20 interface module; and
 - a second local bus for connecting the VPN module to the host interface module.
4. The hybrid network device of claim 1, wherein the VPN
25 module and the WLAN module are divided into different address regions.

5. The hybrid network device of claim 1, wherein the host interface module comprises:

a device interrupt register for causing an interrupt when data transmitted to the host is generated.

6. The hybrid network device of claim 1, wherein the VPN module comprises:

an input buffer for inputting and storing the data packets transmitted from the host; and

an output buffer for processing the data packets stored in the input buffer in one of a VPN and a WLAN algorithm and transmitting the processed data packets to the host.

7. The hybrid network device of claim 6, wherein the VPN module further comprises:

a register for storing packet information for operating the VPN.

8. The hybrid network device of claim 1, wherein the WLAN module comprises:

a media access controller (MAC), a based-band processor (BBP) and a radio frequency (RF) system.

9. A method for operating a hybrid network device for performing operations in a wireless local area network (WLAN) and

operating as a hardware accelerator in a virtual private network (VPN) device, comprising the steps of:

a) discriminating data packets transmitted from a host in a host packet filter according to whether the data packets are of a VPN, and to
5 transmit the data packets to a device driver of the host;

b) processing the data packets from the device driver using an algorithm of the VPN or an algorithm of the WLAN by controlling the device driver;

c) reading the data packets processed by the device driver after
10 completing the algorithm of the VPN or the algorithm of WLAN; and

d) transmitting the data packets read from the hybrid network device to an internet protocol (IP) stack through a signal process for the VPN in a VPN processor if the data packet is the data packet read from the VPN module, or transmitting the data packet directly to the IP stack if the data
15 packet is the data packet read from the WLAN module.

10. The method of claim 9, wherein the host packet filter adds VPN packet information to a data packet that requires application of the VPN packet information.

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11. The method of claim 10, wherein the VPN packet information comprises:

information related to processing the data packet and packet information added to the VPN.

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12. The method of claim 9, wherein the step b) comprises the steps of:

discriminating the data packets with the VPN packet information and storing the data packets in a buffer and a register of the VPN module; and
5 storing the data packets without the VPN packet information in a buffer of the WLAN module.

13. The method of claim 9, wherein the step c) comprises generating a first interrupt after completing the algorithm of the VPN.

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14. The method of claim 9, wherein the device driver reads the data packets from an output buffer of the VPN module when the first interrupt occurs, and converts a result value read from a register of the VPN module into VPN information for adding the read result value to the data
15 packets read from the output buffer.

15. The method of claim 9, wherein the step c) comprises generating a second interrupt after the algorithm of the VPN is completed.

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16. The method of claim 9, wherein the device driver reads data packets from an output buffer of the WLAN module when the second interrupt occurs.

17. The method of claim 9, wherein the first and second interrupts
25 are stored in a device interrupt register of the hybrid network device.

18. The method of claim 9, wherein the device driver gives priority to one of the first and second interrupts when the first and second interrupts occur at the same time.